1998 Summary Report of work conducted by the Missouri River FWMAO on Missouri-Yellowstone River's Pallid Sturgeon

Written by:

Steven Krentz
Missouri River FWMAO
U.S. Fish & Wildlife Service
Bismarck, ND 58501
(701) 250-4419

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Study Area

Sampling for pallid sturgeons was primarily conducted on the first 20 miles of the Yellowstone River upstream form it's confluence with the Missouri River and the Missouri River from the confluence with the Yellowstone River downstream to Highway 85 Bridge near Williston, North Dakota.

Methods

Drift netting remains the most effective method to capture adult pallid sturgeon. These nets are a modified trammel net with one inner wall and one outer wall. The modified trammel nets are 125 feet in length and 6 feet deep with a one-half inch foam-core float line and 50 pound lead-core lead line. The net consists of two walls; one wall of 6" square mesh and the other wall consists of 10 inch square mesh. Both meshes are constructed of #9 twine.

Each drift is timed with the use of a stopwatch and the subsequent catch and time are recorded. During the 1997 field season, we began to collect global position coordinates using a Precision Lightweight GPS Receiver (PLGR) of each drift to develop a database of sampling coordinates and catch. This information will be used to develop a Geographical Information System (GIS) of our sampling effort and results within RPMA #2. Waypoints were collected at the initial setting of the net, when the net set was completed and when we began to pull the net. This will provide information on the location of the drift, drift distance, area sampled, as well as species sampled that will be incorporated onto a base map of the river and it's habitats.

Each pallid sturgeon captured is placed into a six-foot 'sheep tank' with fresh water. All morphological data is collected while the fish is in the water. Weight information is collected with the use of a stretcher and a hanging scale. All pallid sturgeons are scanned for PIT tags or other tags. Previous injuries are also noted.

For all fish being transported, an injection of oxytetracycline (aqueous solution) at a rate of .045 ml/lb of body weight is injected inter-musculature to reduce stress and bacterial infections. Doses greater than 1.4 cc are split between two injection sites. Pallid sturgeon were also transported in a 0.5% salt solution to reduce stress.

Results

A majority of the work accomplished this year was directed toward the capture of broodstock, assisting Garrison Dam National Fish Hatchery with the spawning

of pallid sturgeon, and monitoring the juvenile pallid sturgeon during a telemetry research project. Crews from Montana Department of Fish, Wildlife and Parks, North Dakota Game and Fish Department and the U.S. Fish and Wildlife Service collaborated on these efforts.

Discussion

A total of eight pallid sturgeon were sampled by this office during 1998 (Table 1). These fish were sampled during the months of April and September thru October. The main purpose for capturing these fish was for propagation purposes, so efforts were primarily directed to capturing broodstock pallid sturgeon that would be ready to spawn that year or the spring after following fall capture.

PIT tag #	Date of capture	Location of capture River & Rivermile (RM)	Gender
1F4B225A1A	04/14/98	YE - RM 0.5	Unknown
1F47760123*	04/15/98	YE - RM 0.5	Unknown
1F4A363031	04/16/98	YE - RM 0.5	Unknown
7F7F056171*	04/22/98	MO - RM 1579.6	Female
1F4A3E1445	04/26/97	YE - RM 6	Male
113719262A	09/22/98	MO - RM 1581.5	Male
7F7F06511C*	10/05/98	MO - RM 1579.6	Male
7F7B021573*	10/06/98	MO - RM 1581.5	Female

Table 1. A list of pallid sturgeon sampled by this office during 1997. Also included are the passive integrated transponder numbers, date of capture, location of capture, and gender.

During 1998, pallid sturgeon were stocked at seven locations in North Dakota and Montana. Three sites were selected above Fort Peck Reservoir in Recovery Priority Management Area 1 and a total of four sites were selected for the

Recovery Priority Management Area 2 (Table 2). These fish were stocked according to the guidelines set forth by the Upper Basin Pallid Sturgeon Workgroup.

Name of Location	RPMA	River mile	Number Stocked	Number of Radioed Fish
Fred Robinson Bridge	1	1920.6	230	17
Judith Landing	1	1983.3	230	14
Confluence of Marias River	1	2052.8	230	14
YE-MO Confluence Boat Ramp	2	1581.3	40	0
Nohly Bridge	2	1589.0	230	24
Big Sky Bend	2	17.0	230	25
Sidney Bridge	2	25.0	230	0

Table 2. Stocking location, Recovery Priority Management Area (RPMA) rivermile, number of pallid sturgeon stocked, and number of fish stocked with radio transmitters for 1998.

In addition, a total of seven pallid sturgeon broodstock were returned to the Missouri River near Williston, ND. These fish had been used during 1998 for propagation purposes and were excess to recovery needs. The fish were released at the Missouri and Yellowstone Rivers confluence boat ramp.

Recommendations

- Continue to collect broodstock during the fall or spring prior to spawning.

  Using this procedure increases our likelihood of having a successful propagation. Results to date would suggest that holding these fish over winter prior to spawning does not have an adverse affect to propagation efforts and does result in successful reproduction.

- Continue augmentation program of pallid sturgeon and begin monitoring juvenile pallid sturgeon in their habitats.

- Investigate the impacts to larval sturgeon by lack of downstream riverine habitats.

  It is suspected that successful spawning is occurring, however, lack of recruitment could be one of the main limiting factors of the pallid sturgeon population.

- Develop/utilize facilities at Garrison Dam NFH and Valley City NFH to retain a secondary source of subsequent pallid sturgeon progeny as a backup source for broodstock.

  Culturing the pallid sturgeon progeny that will be held as a future broodstock source at one facility, could allow a catastrophic event to essentially eliminate several years work. The main goal would be to "store" excess pallid sturgeon at a second facility that would serve as a reservoir in the event that the primary source of pallid sturgeon broodstock would be lost.

- Continue to improve on sampling efficiency of juvenile sturgeon.